

Remarks

The Office action mailed January 6, 2003, has been reviewed, and certain amendments have been made to the application. In view of these amendments and the remarks below, Applicant submits that the application now is in condition for allowance.

As recited in the Office action, the Examiner required Applicant to restrict the application to one of three groups. Applicant elected without traverse to prosecute Group I containing claims 1-41 and 48-57. Applicant confirms that claims 42-48 are withdrawn.

The Examiner objected to claim 8 because of a typographical error. Claim 8 has been amended to correct this error.

The Examiner rejected claims 4 and 5 under 35 U.S.C. § 112, second paragraph, as being indefinite. In support of this rejection, the Examiner stated that the term "tool" in claim 4 lacked antecedent basis. Claim 4 has been amended to remove this ambiguity.

The Examiner rejected claims 1, 2, 14, 22, 24 and 34 as unpatentable under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,765,173 issued to Schellstede. Reconsideration is requested.

Independent claims 1 and 22 have been amended to include a seal assembly comprising an elastic seal adapted to provide a seal between the inside of the tubular structure or casing outside the apparatus and the fluid flow paths in the housing, the piercing member and the perforating assembly of the apparatus. Such a seal prevents fluid from flowing between the inside the tubular structure (casing) and the formation or inside the tool. In the preferred embodiment, this sealing feature takes the form of a packer, as recited in original claim 7, for example.

Applicant's use of an elastic seal around a mechanical piercing element arose from his discovery that such piercing devices do not create a clean hole in the casing and that, consequently, a metal to metal seal between the piercing device and the casing is not sufficient. Due to the nature of most casings, puncture by a piercing member causes irregular tears. This prevents complete circumferential contact between the outside of the piercing member and the edge of the perforation it created. The irregular border of the perforation in combination with the pressures in the downhole environment can permit backflow of cement from outside the casing to the inside of the casing around the piercing member. This undesirable effect is substantially prevented by the elastic seal of Applicant's apparatus.

Schellstede shows a well penetration apparatus employing a mechanical "punch." Apparently believing that the metal to metal interface between the hole in the casing and the punch was sufficient, there is no recognition in Schellstede of the need for a seal around the punch. Indeed, the Examiner acknowledges in his comments in Paragraph 17 of the Office action that this feature is not shown in Schellstede. Accordingly, withdrawal of the Section 102(b) rejection of claims 1, 2, 14, 22, 24 and 34 respectfully is requested.

The Examiner rejected claims 1, 2 and 22 as unpatentable under Section 102(b) as being anticipated by U.S. Patent No. 2,381,929 issued to Schlumberger. Reconsideration is requested.

Schlumberger shows a well conditioning apparatus. Like Schellstede, Schlumberger shows a mechanical punching or piercing device that extends through the casing from a downhole apparatus. Like Schellstede, Schlumberger fails to recognize the need for an elastic seal around the punching element. Thus, there is no disclosure or suggestion in Schlumberger of the use of an elastic seal around the perforating member to create a seal between

the flow path in the apparatus and the inside of the casing. Accordingly, withdrawal of the Section 102(b) rejection of claims 1, 2 and 22 over Schlumberger is requested.

The Examiner rejected claims 14 and 34 as unpatentable under 35 U.S.C. § 103 as being obvious over Schlumberger. Reconsideration is requested.

Claim 14 depends from claim 1, and claim 34 depends from claim 22. As explained above, because Schlumberger taken alone does not suggest a sealing member around the perforating device, recited in amended claims 1 and 22, this patent does not support a prima facie showing of obviousness as to these dependent claims. Withdrawal of the Section 103 rejection of claims 14 and 34, based on Schlumberger, is requested.

The Examiner rejected claims 3, 4, 6, 23 and 26 as unpatentable under 35 U.S.C. § 103 as being obvious over Schellstede or Schlumberger. Reconsideration is requested.

Claims 3, 4 and 6 depend from claim 1, and claims 23 and 26 depend from claim 22. As explained above, neither Schlumberger nor Schellstede, whether taken alone or in combination, teaches or suggests a sealing member around a mechanical perforating device, recited in amended claims 1 and 22. Accordingly, these two references do not support a prima facie showing of obviousness as to these dependent claims. Withdrawal of the Section 103 rejection of claims 3, 4, 6, 23 and 26, based on Schlumberger and Schellstede, is requested.

The Examiner rejected claims 5 and 25 as unpatentable under 35 U.S.C. § 103 as being obvious over Schellstede in view of U.S. Patent No. 2,306,670 issued in the name of Sutliff. Reconsideration is requested.

Claim 5 depends from claim 1, and claim 25 depends from claim 22. As explained above, Schellstede taken alone does not suggest a sealing member around the perforating device, recited in amended claims 1 and 22. Sutliff does not provide the deficiency of Schellstede. Sutliff

shows a perforating tool using a drill bit like device, that is, another mechanical perforating member that extends through the hole it makes in the casing. Like Schellstede and Schlumberger, Sutliff fails to recognize the advantages of an elastic seal around the perforating device, and thus this patent does not show or suggest such a seal. Accordingly, the combination of Sutliff with Schellstede does not support a prima facie showing of obviousness as to these dependent claims. Withdrawal of the Section 103 rejection of claims 5 and 2, based on Schellstede and Sutliff, is requested

The Examiner rejected claims 7, 8, 19, 27, 28, 39 and 56 as unpatentable under 35 U.S.C. § 103 as being obvious over Schellstede in view of U.S. Patent No. 4,346,049 issued in the name of Brown. Reconsideration is requested.

Claims 7, 8, and 19 depend from claim 1, and claims 27, 28 and 28 depend from claim 22. Like independent claims 1 and 22, independent claim 56 has been amended to add an elastic seal around the piercing member. As explained above, Schellstede taken alone does not suggest a sealing member around a mechanical perforating device that extends through the casing it pierces, as recited in amended claims 1 and 22. Brown does not suggest the addition of this feature to the Schellstede.

Brown shows a perforation apparatus that uses an explosive charge to create the opening in the casing, rather than a mechanical device that pierces and extends through the casing. Since the explosive does not provide a structural channel from the tool through the casing, the space between the tool and the casing is sealed with a sidewall sealing assembly 33 (Fig. 1A). Thus, there is no suggestion that such a seal would also be advantageous when the mechanical or structural type of piercing or punching member is used, as in Applicant's invention. It is apparent from casing perforation patents subsequent to Brown that one of ordinary skill in the art would not

apply the seal of the shaped charge system to the mechanical punch or piercing type of perforating system of Applicant's invention. Accordingly, even if Brown is considered in combination with Schellstede, Applicant's invention is patentable over these references.

The Examiner's allowance of claim 45-55 is gratefully acknowledged by the Applicant.

The Examiner indicated that claims 9-13, 15-18, 20, 21, 29-33, 35-38, 40, 41 and 57 contain allowable subject matter. In view of the amendments herein to Claims 2 and 22, from which these claims depend, these dependent claims are likewise allowable.

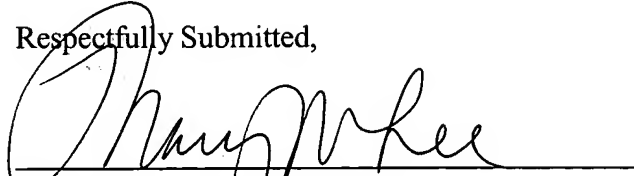
Applicant has added two additional claims, claims 58 and 59, which further define the seal assembly now recited in claims 1 and 22 as a packer. Several other amendments of a minor nature have been made to correct typographical and scrivener's errors. No new matter has been added by these amendments.

Based on the foregoing, it is submitted that claims 1-41 and 48-59, as amended herein, are patentable over the references of record. A Notice of Allowance is courteously solicited. If the Examiner has any questions or comments concerning the instant application or this Amendment, the Examiner is invited to contact the undersigned.

This is intended to be a complete response to the Office action mailed January 6,

2003.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Mary M. Lee", written over a horizontal line.

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